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AUTHOR Dumbrell, Tom
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ABSTRACT

Outcome measures are one of three key dimensions of the performance of Australia's vocational education and training (VET) system. The government, employers, students, and the broader community all share an interest in ensuring that Australia's VET system produces skills needed in the labor market. However, each group's views of what constitutes a valid outcome measure are unique. Australia has established the following seven key performance measures for assessing the VET system: skill outputs produced annually within the domain of formally recognized VET; stocks of VET skills against desired levels; employers' views on the relevance of skills acquired through VET; student employment outcomes and prospects before and after participation in VET; VET participation, outputs, and outcomes achieved by specific client groups; actual public expenditure per publicly funded output; and actual public expenditure per total recognized output. Outcome measures designed to assess delivery of VET in schools are less developed than are those intended for the postschool sector. The literature review revealed that the following topics require further research: labor market outcomes; equity in VET; youth unemployment and VET; funding the training market; matching supply with demand; and VET in schools. (Contains 52 references.) (MN)

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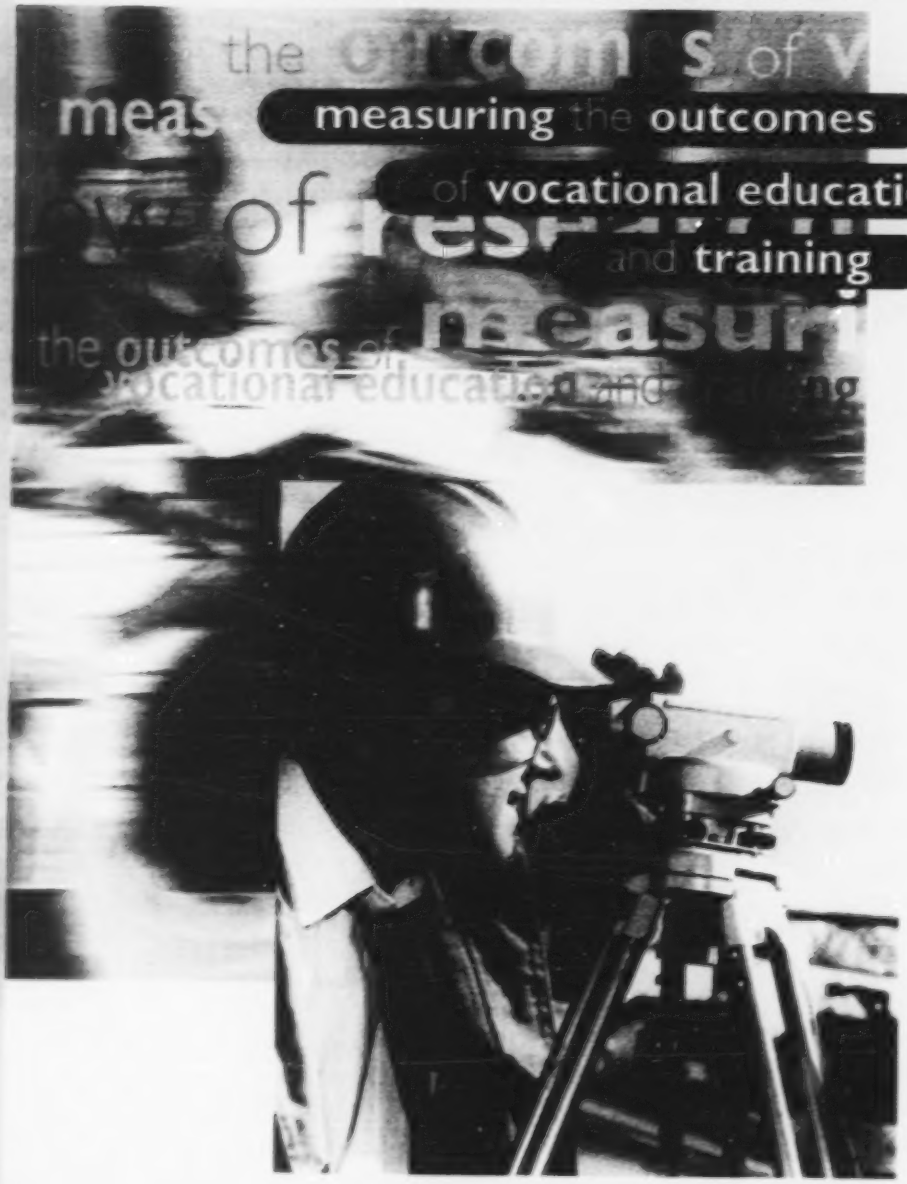

T Dumbrell

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review of **research**

measuring the **outcomes** of **vocational education** and **training**

Tom Dumbrell

NCVER

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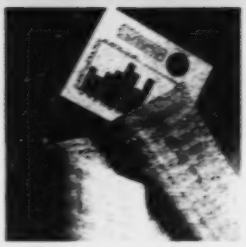


executive summary

This review is a consolidation study describing the range of outcome measures used in the vocational education and training (VET) system and examines a range of literature concerning these measures. The first section of the paper aims to identify various perspectives on outcome measures, those of governments, of employers, of students and of the broader community; the paper describes how these perspectives influence the types of measures in use.

The paper establishes the role of outcome measures as one of three key dimensions of system performance and examines in some detail the seven key performance measures (KPMs) for the VET system established by the Australian National Training Authority (ANTA) Ministerial Council. Four of these seven KPMs are judged to be outcome measures. Other outcome measures that impact upon the VET system and of interest to other government agencies, such as the Productivity Commission through its *Report on government services*, are also considered.

The community, employers and students all share an interest in ensuring that the VET system produces skills needed in the labour market, although their perspectives can differ. The community has a social and economic interest in seeing low youth unemployment and high levels of training investment by employers. Employers require the VET system to provide workers with the right skills mix in sufficient numbers. As most VET students are motivated by vocational objectives, they too want to acquire skills relevant to the labour market. The views of employers and students on the VET system are gained by examination of the main source documents—the employer satisfaction survey (ESS) and the graduate destination survey (GDS) (now the student outcomes survey). The analysis of these sources undertaken by ANTA and the Productivity Commission is also briefly reviewed.

Separate consideration is given to the delivery of VET in schools. Outcome measures in this sector are less developed than in the post-school sector and to some extent are merged with outputs.

Having established the various perspectives on VET outcome measures, the paper reviews a range of literature within these contexts. Labour market outcomes

for VET students are impressive in terms of accessing employment; however, there are marked differences for some groups of graduates. The paper canvasses the issue of how much responsibility the VET system has for employment outcomes and compares measures 'internal' to the system, such as participation rates and module completion rates, with 'external' measures such as unemployment rates.

Women, indigenous people, people with a disability and those from a non-English-speaking background (NESB) achieve poorer employment outcomes than other graduates. Much VET research relating to equity has identified a need for more specific outcome measures for equity target groups, such as culturally appropriate measures for indigenous people. Another important point to emerge from the research on equity target groups, of more general relevance, is a need for more specific evaluation studies of courses, rather than a reliance on wide-ranging data collections.

Several researchers (Gonczi 1998; Anderson 1997) have traced the origins of the greater focus on economic outcomes to the globalisation of the Australian economy and related anxieties over Australia's international competitiveness. Fitzgerald (1994) directly links the need for meaningful outcome measures to the growth of the training market. A theme arising regularly in the literature is the apparent conflict of values between what are seen as 'economic' outcome measures and those identified as 'educational'.

The growth of the competitive training market has been the catalyst for what is probably the central theme of the debate over VET outcomes; that is, the balance between educational and economic values. Several important related themes are also reviewed—the role of VET in reducing youth unemployment and industry investment in training.

Considering the central role that the training market policy continues to occupy, it is surprising that there appear to be no measures to determine how much this policy has actually increased choice and diversity within the VET system. Given also that a key rationale for introducing the competitive market approach to VET funding was to produce a reduction in VET unit costs, it is surprising that the Productivity Commission found government expenditure per module load completion rising between 1996 and 1997 (Industry Commission 1999).

Burke (1998) identifies reducing the youth unemployment rate as an important objective of the training reform process. Robinson and Ball (1998) show that young people's participation in VET rose between 1990 and 1996, despite reductions in apprenticeships and traineeships. However, during the 1990s the rate of youth unemployment rose. There is a legitimate view that the VET system cannot

be regarded as accountable for the decline in youth full-time employment. Some writers however have questioned why the large increase in VET enrolments has largely been in older students rather than in young people. Others (for example, Curtain 1998) have pointed out that Australia, on international standards, is well supplied with university graduates but compares less favourably at both upper and other post-secondary levels, hence implying that increased participation by teenagers in VET could assist the nation to improve its overall educational standards.

The paper explores some of the issues relating to skills shortages from the employer's perspective and industry investment in training. The evidence appears to indicate that skill shortages in the VET area are not widespread. There is also considerable interest in the literature in the degree to which industry views investment in skilling the workforce as a path to productivity gains, with several writers suggesting that industry generally fails to link training expenditure to productivity gains.

Finally, the paper identifies a range of issues that may warrant further research. The longer-term outcomes of VET are identified as one area with limited coverage to date. Graduates have shown some level of dissatisfaction with the provision of information on courses and careers; however, there seems to be little research into how to improve this aspect of VET delivery.

Given the relatively slow rise in teenagers' take-up of post-school VET compared with older students, research into reasons for this seem warranted. Related to this might be further research into the development of outcome measures for school students undertaking VET courses. Are they, for example, more likely to progress into post-school VET and what other outcomes are achieved?

The training market remains a foundation of VET policy, yet the assessment of its benefits, both in terms of cost reduction and increased choice and diversity of provision remains largely unknown. Some evidence suggests costs have not declined, while the only measure of choice appears to be the number of registered providers. Research into user choice and diversity might embrace both employer and student perspectives.

context

One of the distinguishing features of many areas of government in Australia during the 1990s has been a growing insistence on providing evidence that the expenditure of public funds is producing demonstrable benefits, both to the participants and to the broader community. Currently, about $3.5 billion is spent annually for recurrent purposes by governments on vocational education and training (VET) in Australia. This review of research is principally concerned with examining the current range of measures which indicate what we get for our public and private expenditure on VET.

This review of research is principally concerned with examining the current range of measures which indicate what we get for our public and private expenditure on VET.

The philosophy of accountability through the objective measurement of performance is demonstrated in the following extract from the Productivity Commission's 1998 *Report on government services.*

> *The goal of this Report is to develop and publish objective data on the performance of services important to all Australians, to facilitate well informed judgements and sound public policy action. By providing comparisons across jurisdictions, this information allows governments to assess agency performance and communities to assess how well governments are meeting their needs and at what cost. Such yardstick competition can be important for improving government services for all Australians…*
>
> *Governments play two roles in ensuring services are available for the community. First, governments specify, to varying degrees, the service to be provided and who should receive it, and they ensure that it is supplied at an acceptable standard through funding and regulation. Second, they often operate the service.*
>
> *To judge how well governments fulfil these roles:*
>
> - *performance needs to be measured across a comprehensive set of objectives*

- *indicators need to focus on outcomes and/or outputs aimed at meeting those objectives*
- *reported data needs to be comparable across jurisdictions and time*

(Industry Commission 1998, p.iii, xxiii)

The Productivity Commission identifies vocational education and training as a discrete area of government activity and includes an analysis of the sector's performance from its perspective in that publication. The Productivity Commission identifies outcome measures as one of three aspects of the performance of a system, along with the notions of 'compliance with established processes' and 'levels of activity or expenditure'.

At this point it may be useful to raise briefly the issue of definition of outcomes. The following extract from the New South Wales Council on the Cost of Government provides a useful set of definitions developed by the Government Accounting Standards Board (GASB) of the United States (www.occg.nsw.gov.au/research/sea.htm):

> *Service efforts and accomplishments outcome, output and efficiency indicators are defined by the GASB:*
>
> *outcomes – results or impact of government intervention in the community*
>
> *outputs – quantity of service provided*
>
> *inputs – financial and non-financial measures of resources utilised*
>
> *efficiency and cost effectiveness – cost per unit of the output or outcome*

In the VET world however, the application of these relatively simple definitions becomes more difficult, and to some extent the application of the definition needs to be seen from the different perspectives of the various players in the system.

Employers, for example, are estimated to spend at least a further $2.5 billion on training, not counting the wage and salary costs for time spent by their employees in training. The outcomes that employers are likely to expect from this expenditure will probably be different from those the individual student or employee might seek.

This review aims to identify the main outcome measures used in VET, to assess the available research findings on these outcomes, and to suggest areas where future research and policy development in measuring outcomes might be conducted.

measures of outcomes in VET

The notion of outcomes in VET essentially encompasses dealing with the return derived from either undertaking, funding or delivering a VET course. Since there are many separate interest groups involved in VET and expecting a return from the system, it follows that there are many different perspectives on what are valid outcome measures.

The main interest groups are students and VET graduates, governments, employers, VET providers, groups with special needs who form a sub-group of students and VET graduates, and the broader electorate. Current outcome measures can be seen as addressing the information needs of at least some of these groups. The following section considers the current array of measures from the perspective of these main interest groups.

the **government** perspective

Within the VET system, responsibilities for system performance within the public sphere are shared between the Australian National Training Authority (ANTA) Ministerial Council, the national body, and State/Territory jurisdictions. At the national level the Ministerial Council has endorsed seven key performance measures (KPMs) which are being instituted over the next four to five years. At least three of these seven measures are wholly or partly concerned with measuring VET outcomes. The inputs, outputs and outcomes of the national VET system are reported annually through the three-volume ANTA national report.

These seven key performance measures agreed on by the ANTA Ministerial Council are:

- KPM 1: Skills outputs produced annually within the domain of formally recognised vocational education and training
- KPM 2: Stocks of vocational education and training skills against desired levels
- KPM 3: Employers' views on the relevance of skills acquired through vocational education and training

- KPM 4: Student employment outcomes and prospects before and after participation in vocational education and training
- KPM 5: Vocational education and training participation, outputs and outcomes achieved by client groups
- KPM 6: (Actual) public expenditure per publicly funded output
- KPM 7 (Actual) public expenditure per total recognised output

Of these seven KPMs, numbers 2, 3, 4 and 5 are clearly outcome measures—at least in part. KPMs 6 and 7 are efficiency measures, while KPM 1 is a measure of outputs. In its report to ANTA (ANTA 1997) the Performance Review Committee (PRC) referred to KPM 5 as an 'equity' measure; however, it is clear that in part it is an outcome measure for equity groups.

While these seven measures are important, especially for the regular monitoring of the system for government funding, there are other national outcome measures, broadly defined, that can also be considered since they are indicators of the impact of broad policies and objectives of VET. They include such indicators as employer expenditure on training, participation rates of young people in VET, the quality of training and the equity of training delivery. These broad measures can be seen as reflecting the community's perspective on outcome measures.

The Productivity Commission's *Report on government services 1999* (Industry Commission 1999) identifies three broad areas of outcomes: national outcomes, employer outcomes and student outcomes. For these outcomes, six performance indicators are identified as shown in the following table.

table 1: Productivity Commission measures of VET outcomes

outcome	performance indicators
national outcome	skill profile
employer outcomes	overall satisfaction with VET meeting employer needs availability and accessibility
student outcomes	meeting main objectives of doing course meeting student needs

source: Industry Commission 1999

Governments are generally concerned with either system outcomes; that is, aggregates which relate to the whole system, or with broad categories or classes within the system. There are however, outcomes of a different kind and these are the outcomes from specific courses as measured by the success or otherwise of

students mastering the course or module. In recent years the focus in this area has been on the attainment of assessable competencies, who defines these competencies, and in what context they should be assessed. It is with outcomes of this nature that employers, teachers, trainers and those closest to delivery of VET are often most concerned. Moreover, teachers and administrators operating within a more competitive market framework are more likely to be focussed upon the outcomes for their institution than upon the system as a whole.

Other interest groups within the VET sector—students, employers, the representatives of special interest groups, the broader community and State training agencies—have specific outcomes of interest to them. Students surveyed in the graduate destination survey for example, clearly place vocational outcomes highly in their priorities, with almost 80 per cent (NCVER 1997) identifying employment-related reasons as their main reason for study.

the **community** perspective

The broad community, as distinct from individual students and employers, has an interest in investing in vocational education and training provision. There currently exist imperfections in the operation of the training market, particularly inadequate information on future skill needs. Obviously, the community benefits through the avoidance of skill shortages and unemployment. Thus there are economic and social benefits in the community investing in VET. Over the last decade two major outcomes expected in the wider community from the VET sector, and which became objectives of the system by the various State ministers and the federal minister in 1997 and 1998 have been:

- an increased employer contribution to training
- better training producing lower youth unemployment

The ANTA Ministerial Council's KPM 2 aims to relate the overall output of the VET system at the national level to the demands of the Australian labour market. This measure, 'Stocks of vocational education and training skills against desired levels' is described by the Performance Review Committee (PRC) of ANTA as designed to *measure* 'the size of the VET skills pool compared with desired levels' (ANTA 1997, p.12). This measure is perhaps the most 'macro' of the outcome measures in the suite of KPMs, and equates to the national outcome of the Productivity Commission. The proper use of such a measure requires the collection of both supply and demand data on the Australian labour market. The PRC paper

envisages the collection of data on units of competency by industry and occupation, as well as data on completed modules and formal qualifications. The issues relating to the collection of this output data are detailed in 'Measurement of vocational education and training outputs', (Robinson & Borthwick 1998). They proposed the collection of two primary measures of VET outputs: a count of the number of units of competency produced each year by the VET system and a VET skills index that aggregates weighted units of competency.

The demand side of this model would require the collection of data from employers on their labour demands in terms comparable to the supply side data. The PRC comments that data on the 'stocks of VET skills will be relatively simple to measure' (ANTA 1997, p.12). The PRC however, acknowledges that further work is required to model the demand side.

Another useful perspective on the broad 'skill pool' issue is provided by Curtain (1998). His paper compares various measures of educational attainment in OECD countries. It shows that, while Australia scores quite highly in terms of university level qualifications, it performs quite poorly on the measure of 'at risk' teenagers as a proportion of all teenagers. He shows that Australia is also likely to perform poorly in terms of the attainment of upper- and post-secondary qualifications over the next 15 years.

The broad community, as distinct from individual students and employers, has an interest in investing in vocational education and training provision.

> *Projections made by the OECD suggest that the proportion of the Australian population (aged 25 to 64 years) attaining upper secondary education and above will only increase to 62 per cent by the year 2015... This increase from 53 per cent in 1995, however, does not improve Australia's relative ranking. In year 2005, Australia is ranked 15th with Ireland. By 2015, Australia is ranked 17th out of 20 countries.*
>
> *...The data show that Australia's relative standing in relation to the proportion of the population aged 25 to 64 years with at least upper secondary school education 1996 has dropped from 15th to 18th.*
>
> (Curtain 1999, p.11)

the **employer's** perspective

Several measures of VET outcomes exist that reflect performance from the employer's perspective. Most obviously, KPM 3 from the ANTA Ministers' list of key performance measures seeks to determine employers' views on the relevance of training.

A key source of employers' views on the relevance of skills acquired through training is the employer satisfaction survey (ESS) (NCVER 1997a) that is undertaken about every two years and is managed by the National Centre for Vocational Education Research (NCVER) on behalf of ANTA. The 1997 survey sampled 2687 employers of recent VET graduates across Australia and sought a range of comments in relation to VET provided to employees of each employer surveyed. In this survey respondents were asked to comment in relation to the relevance of VET course content for courses undertaken by their employees. There were also questions in relation to the balance between theory and practice, satisfaction with flexibility in course delivery and appropriateness of the assessment process.

In its 1997 report on VET performance (ANTA 1998a), ANTA, using data from the employer satisfaction surveys, reports on:

- employers' satisfaction with VET (by State/Territory)
- employers' views on the appropriateness of VET graduates' skills (by State/Territory and enterprise size)
- employers' satisfaction with the relevance of course content (by State/Territory and by enterprise size)

It should be recognised that employers surveyed in the employer satisfaction survey were asked to comment on the relevance of the graduate's skills to that industry, and in fact many would interpret the question, quite reasonably, only in relation to their own workplace. As is clear from the graduate destination survey many graduates undertake studies to change jobs. This outcome measure therefore, may have only limited value as an indicator of systemic relevance. (In other words some recent graduates who undertook a TAFE course are likely to have acquired skills more relevant to another industry's needs rather than their current employer's.)

the **student's** perspective

The main source of data on student outcomes is the TAFE graduate destination survey, (GDS), conducted annually in recent years. This is a mail questionnaire survey of TAFE graduates who complete a course of at least 200 hours' duration or of one semester. In 1998 nearly 121 000 questionnaires were distributed with a response rate of about 55 per cent. In 1999 this survey was expanded to include 'module completers' as well as graduates and was retitled the student outcomes survey.

The GDS collects a substantial amount of data from respondents, including their participation in further study, employment status before and after their course, full-time or part-time employment when surveyed, earnings, industry and occupation of employment. It allows such data to be matched against the level of qualification undertaken, the field and stream of study chosen, and personal characteristics such as age and gender. It also gathers important information on students' motivations for undertaking their course of study and their perceptions of the relevance of their training to their current job.

Another category of student outcomes is surveyed in the GDS, *satisfaction* outcomes. Participants in the survey are asked to rate their satisfaction with 13 aspects of their course. Some of these satisfaction outcomes are reviewed later.

It is important to keep in mind that the graduate destination survey involves only a proportion of those attending TAFE. It excludes students completing courses of less than 200 hours' duration including students defined as failing their course. A recently completed study by Foyster (Foyster et al. 2000) shows that module completions are likely to be the only outcomes sought by a significant group of students. At present module load completion and pass rates are not widely reported.

VET outcomes for **specific client groups**

A search of various databases, both in Australia and internationally, using the terms VET outcomes seems to produce more references to outcomes for the identified disadvantaged groups than for the system as a whole. This highlights the importance of VET as a mechanism for increasing access to employment for those least able to achieve that access.

The equity groups reported on by ANTA in its annual report (ANTA 1998a) are:

- females
- people from rural and remote areas
- indigenous Australians
- people from non-English-speaking backgrounds
- people with a disability

As ANTA points out,

It should be noted that attempts to monitor client groups in vocational education and training rely on the self-identification of people as a member of these groups via their enrolment forms. As substantial numbers of people

choose not to answer questions on their enrolment form which identify their ethnicity, aboriginality or disability, the following data is indicative only.
(ANTA 1998a, v.3, p.48)

ANTA reports on two types of outcomes for equity groups, module load completions and module load pass rates, which are grouped under the heading 'participation, outputs and outcomes' in the 1998 annual report.

Data on outcomes for equity groups are available from the GDS in the form described in the preceding section, although they too are subject to the variability resulting from self-identification.

school students doing VET

In the late 1980s, driven by changes in the world economy and declining opportunities for low-skilled work (Harris, Guthrie, Hobart & Lundberg 1995) schools were once again perceived as playing a role in vocational education.

> *Greater diversity in curriculum and expected outcomes in the post-compulsory years of secondary schooling developed as a result of the emphasis which has been placed on vocational education and training by the Federal Government and State educational authorities over the past decade. One important starting point was the paper* Higher education: A policy statement *(1988), issued by the Minister for Higher Education and Training, John Dawkins, which highlighted the need to create a more highly skilled and educated workforce and identified the final two years of secondary schooling as a focus for this development.* (Kane 1997, p.12)

In 1997 about four per cent of all VET clients or 61 500 persons, were still at school (NCVER 1998c). This compared with over 350 000 teenagers in VET who had already left school (NCVER 1999).

There are several different approaches to the provision of VET in schools in Australia. These include:

- providing full-time students with vocational courses delivered by the school or by an external provider
- combining academic school studies with an apprenticeship or traineeship
- school students undertaking structured training as a component of a part-time job outside school hours

Large numbers of school students also undertake work experience programs, however this activity is not part of the VET system.

In its 1997 annual report, volume 2 (ANTA 1998a), ANTA reports that $80 million has been allocated to school authorities over four years for the delivery of programs that expand VET in schools. Outcomes for school students undertaking VET are identified in the paper, 'Principles and guidelines for improving outcomes for vocational education and training in schools' (ANTA 1999b) which, *inter alia,* identifies the reporting and accountability requirements of this part of the VET system. The guidelines appear to impose very flexible requirements for reporting on VET outcomes in school. Paragraph 18 of the ANTA document notes, in part:

- *18. In each State and Territory, Government and non-Government schools authorities will jointly determine and report progress on expenditure, milestones and outcomes of the programme on an annual basis through State Training Authorities to ANTA, and will forward the information to the MCEETYA Task Force on VET in Schools to facilitate its responsibility for coordinating information exchange as per paragraph 15. The reporting process will address the benchmarks negotiated in the initial agreement between State Training and School Authorities as outlined in paragraphs 16 and 17 above.* (ANTA 1999b, para.18, p.5)

Paragraph 15 indicates that the MCEETYA (Ministerial Council on Employment, Education, Training and Youth Affairs) Task Force on VET in Schools is the body responsible for 'coordinating information exchange across States and Territories'. Paragraph 5 of the guidelines identifies seven principles previously agreed upon by MCEETYA ministers, and appears to represent the principles the above extract refers to in paragraph 15. The document does not give a clear indication of which outcomes are to be measured for VET in schools, other than the principles included in paragraph 5, which are:

5. Funds will be provided to school authorities for the development and delivery of programmes which meet the following Principles:

- *based on national industry/enterprise competency standards based on Training Packages where endorsed, or involve modules based on available industry/enterprise competency standards*
- *relate to, or provide, VET certificates within the Australian Qualifications Framework (AQF) and senior secondary certificates endorsed by State and Territory Board of Studies*
- *provide for industry identified requirements for structured workplace learning and assessment and take account of national and local skill shortages and industry needs*
- *articulate with apprenticeships, traineeships, employment and further education and training*

- *be delivered by providers who meet registration requirements of the Australian Recognition Framework*
- *provide for the needs of the equity target groups*
- *develop regional and community partnerships*

(ANTA 1999b, para.5, p.4)

There appear in this document, to be no clearly articulated outcome measures for VET in schools that would allow any meaningful comparisons with VET delivered through other providers. Reports from States and Territories in volume 2 of the 1997 ANTA annual report (ANTA 1998a) provide at best only brief details of VET in schools activities and little in the way of genuine outcomes data. In the Principles document, paragraph 17 imposes a requirement on school authorities to include, *inter alia*, in their agreements with the relevant State training authority, 'outcomes/outputs and milestones/timelines for the expansion of vocational education in schools' (ANTA 1998a, p.4). In other words, it appears that outcomes and outputs are being merged, and the only formal 'outcome' requirement upon school systems is to increase the output of school students with a VET credential.

findings from recent research

student outcomes

labour market outcomes

The NCVER graduate destination survey report provides a valuable analysis of the graduates' employment before and after their course. This report specifically addresses the second half of the main national key performance measure—that dealing with student outcomes (KPM 4: Student employment outcomes and prospects before and after participation in vocational education and training). The NCVER analysis provides data on both occupational status and broad labour market status before and after the student's course. Importantly, these data show a strong movement out of less skilled occupations into trades, associate professional and professional occupations. They also show an increase in the proportion in the labour force, an increase in the proportion in full-time employment, a reduction in the proportion in part-time employment and a reduction in the proportion unemployed and seeking work.

The labour market outcomes for graduates reported in the GDS appear impressive. In summary, of those unemployed before their course, 46 per cent were employed when surveyed and overall, 71 per cent of all surveyed graduates were employed, 15 per cent were unemployed and 14 per cent were not in the labour force. For those graduates whose major motive for study was vocational, 76 per cent believed that their course had either wholly or partly assisted them to achieve their aim.

The Graduate Careers Council gathers a similar but not a completely comparable set of data (www.gradlink.edu.au/gcca/g_gra97/htm) on university graduates. Those data show a slightly higher full-time employment outcome for university graduates, with about 80 per cent of university graduates available for full-time employment employed full time, and a somewhat lower unemployment rate than for TAFE graduates.

Males appear to benefit more in terms of increased earnings and promotion, while females are more likely to have achieved a job change as a benefit. More detailed analysis (Dumbrell et al. 2000) of employment outcomes by gender reveals marked differences between both employment outcomes and full-time earnings rates. That analysis shows, *inter alia*, that:

- female graduates are about 2.5 times as likely to be employed part time as males, twice as likely not to be in the labour force, and more likely to be unemployed
- at the 1997 GDS only about 35 per cent of women were employed full time compared to about 63 per cent of men
- there appear to be ongoing occupational gender segregation factors and industry-related factors driving differences in male and female employment outcomes which appear to be related to differences in fields of study in which courses are taken
- women graduates working full time earn less than their male counterparts across all industry divisions. This does not appear to be explained by differences in level of qualification attained

A large number of VET clients undertake selected modules rather than whole courses. In 1997 over 46 per cent of clients undertook one or two modules in the year (NCVER 1998b). As Foyster, Fai and Shah (Foyster et al. 2000) show in their study, the number of TAFE students partially completing[1] a course also represents an important output from the TAFE system and a largely unrecognised outcome. They found that almost twice as many TAFE students would be 'partial completers' of courses as would complete a course. They found that completion was much more likely for shorter courses; that is, of one year or less, rather than for longer courses. The publication of the student outcomes survey by the NCVER contributes to rectifying this imperfect picture of the total outcomes of the VET system.

Several longer-term studies of changes in earnings by occupation and/or level of qualification, undertaken by Gregory, Karmel and Maglen, are analysed by Burke (Burke 1998). However, the findings reported show some inconsistencies. Contrary to the experience in the USA, there appears to have been little indication of strong growth in rewards for the attainment of higher (including vocational), educational qualifications over time. Long, McKenzie and Sturman (1996) found that,

[1] 'Partial completers' are defined as those students who, before leaving the course, successfully completed at their first attempt, the modules they enrolled in, and the sum of the hours for these modules was less than the hours specified for the course.

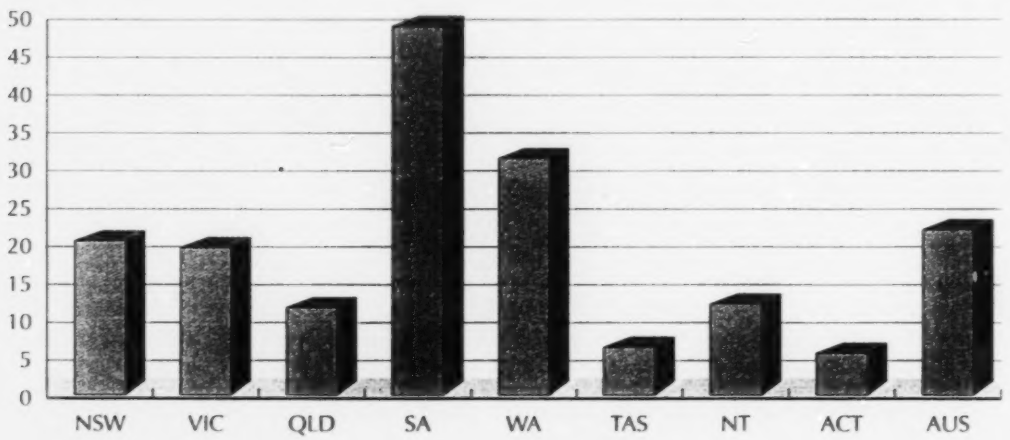
'completion of a vocational education qualification is associated with somewhat higher earnings for males and a little difference in earnings for females'. They caution however, that the increase is insufficient to be likely to justify the extension of a HECS-like (Higher Education Contribution Scheme) scheme to the VET sector, and that such a policy could have adverse labour market and equity outcomes.

outcomes for equity groups

An important subset of student outcome measures relates to outcomes for the equity target groups. There are some difficulties associated with reporting on special groups, a point noted by ANTA in its annual report. These difficulties largely result from the self-reported nature of status of membership of these target groups.

Analysis of GDS data shows that responses to questions on membership of special target groups varies markedly between jurisdictions, showing that subtle differences in enrolment processes or other areas can significantly affect basic data. As an example, data for indigenous status are shown in the following chart.

figure 1: students not reporting indigenous status, percentage, by State/Territory



source: NCVER 1998b

Improvements in data-gathering at the enrolment stage to ensure better coverage of target groups within VET would enable better assessment of outcomes for equity target groups.

ANTA (1998a) devotes a separate section in their chapter on client group outcomes and under this heading analyses data from the graduate destination survey for equity group graduates.

The outcomes picture for these client groups emerging from a consideration of both module load pass/completion rates and GDS outcomes appears to show two distinct patterns.

Equity groups fare relatively poorly in terms of employment outcomes as measured by the GDS. The following table is based on data presented in the ANTA 1997 annual report (ANTA 1998a).

table 2: labour market outcomes for equity groups

group	% employed	% unemployed	% not in labour force
indigenous Australians	52	22	26
non-indigenous	71	15	14
speakers of languages other than English	60	20	20
speakers of English only	76	13	11
report a disability	50	24	26
report no disability	72	15	13
females	66	17	18
males	78	13	9
total	71	15	14

source: ANTA 1998a

The poor employment outcomes for indigenous Australians and those reporting a disability highlight in particular, that equitable VET provision is, of itself, an insufficient guarantee of equity in employment outcomes. Clearly the conclusion reached by Schofield and Dryden (1997) in relation to women's equity measures, that participation in VET is an inadequate equity measure, could be extended to the other equity groups as well. ANTA has recognised this in its paper 'Achieving equitable outcomes' (ANTA undated a), which notes that:

> *Participation alone is an inadequate measure. It serves to focus attention on access to training without giving due regard to the vocational education and training experience or the value derived as a result. An exclusive focus on participation is inconsistent with public sector emphasis on outputs and outcomes. It can also serve to mask critical equity issues. For example, inequities in Aboriginal and Torres Strait Islander peoples' experience of vocational education and training only become apparent when the relationship between participation, outputs and outcomes is examined.*
>
> (ANTA undated a, p.7)

There are significant differences among target groups when module load pass/completion rates are examined. Nationally, female students achieve slightly better pass and completion rates than males. Those in rural and remote regions also

appear to record pass and completion rates at least the equal of those in urban areas. On the other hand, indigenous students, those from a non-English-speaking background and those with a disability generally record pass and completion rates 5–10 per centage points or more below persons not in those categories. A fuller discussion of these issues can be found in the paper presented by Claire Field to the NCVER 7th National VET Researchers' Conference (Field 1998).

Variations between equity group members and the broader student body are also evident in relation to satisfaction with outcomes as measured by responses to the graduate destination survey. Reporting on this the Productivity Commission found that:

> *The extent to which students achieved their main reason for doing a course not only varied across jurisdictions but also across ANTA-designated target groups. Nationally 49 per cent of TAFE institute graduates who enrolled in a VET course to obtain a job achieved this outcome. However, this outcome was lower for people from both non-English speaking backgrounds (43 per cent) and people identifying themselves as being an Aboriginal or Torres Strait Islander person (47 per cent).*
>
> (Industry Commission 1998, p.193)

Robinson and Bamblett (1998) show that educational outcomes for indigenous people in Australia have improved over the last decade as measured by access and participation levels, especially in the area of school retention rates. They note however, that VET module outcomes for indigenous people still fall below the non-indigenous population, with lower pass rates and higher withdrawal rates. Reinforcing the comments of indigenous representatives, they stress the need to focus on 'appropriate outcomes' for indigenous people; that is, outcomes that do not compromise their cultural beliefs. Robinson and Bamblett point out that the goals of the National Aboriginal and Torres Strait Islander (ATSI) Education Policy still requiring the greatest attention are those relating to equitable and appropriate outcomes, such as providing educational services that enable indigenous people to develop the skills to manage the development of their communities.

Indigenous students, those from a non-English-speaking background and those with a disability generally record pass and completion rates 5–10 per cent points or more below persons not in those categories.

Representatives of at least some of the equity groups see the mainstream system of vocational education as providing barriers to better outcomes for the groups they represent. For example, speaking for

indigenous students, Donna Ah Chee, Jack Beetson and Bob Boughton (1997) commented:

> *The 'mainstream' education system has failed us, as indigenous peoples, it has been part of the problem. Aboriginal education is part of the solution... we don't separate adult education, the way mainstream systems do, into separate institutions or sectors, like universities for academic subjects, TAFE colleges for vocational courses, and community centres for non-formal education. We have to work within these non-Aboriginal system definitions to get our courses recognised, otherwise we don't get funded, but we do them all in the one place, and our students can move between them freely, finding their own pathways. We call this holistic education.*
>
> (Ah Chee, Beetson & Boughton 1997, p.2)

It follows that the outcomes that are desired by indigenous people are not necessarily the same as those derived from subsets of the mainstream outcome measures. This point is clearly recognised in the framing of the 21 goals for the National ATSI Education Policy. How does the VET system measure an outcome such as that expressed by Ah Chee, Beetson and Boughton in the following quote?

> *...the education we provide builds the capacity of our communities to exercise their right of self determination, and to develop the way they want to.*
>
> (Ah Chee, Beetson & Boughton 1997, p.2)

Aims such as self-determination and integration of training with other community needs are likely to be shared with other equity groups. The evaluation of the Cherbourg construction traineeship project by the Department of Employment, Education, Training and Youth Affairs (DEETYA) (1998) for example, shows the value of integrating VET programs with broader indigenous community objectives. It perhaps also reveals the value of specific program evaluation as a necessary concomitant of the use of KPMs to obtain a more complete understanding to program outcomes in VET.

These more focussed approaches to outcome measures provide an indication of where appropriate policy responses might be targeted. For example, it would appear that for women and persons in rural and remote areas, the provision of VET is achieving relatively equitable outcomes as measured by pass and completion rates. That is, from the perspective of the teachers and colleges, it might appear that these groups are being adequately serviced. It would seem to follow from this conclusion that, to improve outcomes for these groups, policy initiatives should be directed towards the external labour market rather than towards VET policies or practices.

However this would be a premature conclusion. Such outcomes might be the result of variations in the levels or fields of study undertaken by the different groups, or perhaps in other VET variables such as differences in module duration. A work in progress by the author (Dumbrell et al. 2000) noted earlier shows that variations in field of study between male and female students appear to contribute to significantly different occupational and earnings outcomes for male and female TAFE graduates. This study also highlights the pronounced differences in the proportions of male and female graduates finding full-time work. About twice the proportion of males as females were in full-time work when surveyed in the graduate destination survey. These findings highlight the difficulty of relying on broad outcome measures to develop appropriate policy responses to equity issues. More targeted research and evaluation are more likely to produce useful policy prescriptions. They also reinforce Schofield and Dryden's (1998) recommendations that gender should be included more frequently as a variable in VET performance and outcome reporting.

the **training market** and outcomes

the labour market versus educational outcomes debate

One of the central debates within the VET sector in recent years, resulting from the National Training Reform Agenda, has been concerned with the degree to which the VET system's outcomes should be measured in terms of labour market relevance. One end of this spectrum could be characterised as a view that education, including vocational education, should produce long-term changes in behaviour and should provide the foundation for life-long learning and hence, that its outcomes should be judged largely on educational criteria.

The other end of this spectrum, frequently represented by industry and employer associations, has criticised VET, *inter alia,* for failing to adjust rapidly enough to the changing needs of the labour market and not revising its curriculum content adequately. This position would regard labour market relevance as one of the most important criteria in assessing VET outcomes. This is clearly a demand-side focus.

Gonczi (1998) traces the development of this debate to the economic changes, particularly globalisation, to which the Australian economy was exposed in the 1980s and 1990s. He argues that the anxiety over Australia's declining economic position led to the focus on making education policy more economically

relevant in recent years. Anderson (1997) presents a similar view, particularising the matter to the VET sector through the need to 'forge closer links between skills supply and demand' and the restructuring of industrial awards. The increasing decentralisation of industrial relations over the 1990s at the same time that VET was becoming more centralised, in combination with changes in bureaucratic alignments, has resulted in a distancing of the two fields.

the training market

Anderson (1998) notes the findings of the Deveson Report (1990), advocating reform of TAFE to make it more responsive to the changing skill needs of industry and individuals. In 1992 the Commonwealth Government and the State Governments established the 'common and agreed national goals for vocational education and training in Australia,' which incorporated the development of a training market in Australia.

This training market concept served as a further stimulus to the development of outcome measures. The growth in competitive tendering of VET services places an onus upon governments and their advisers to have impartial and meaningful criteria upon which to base decisions on allocation of VET funds. In discussing the development of an effective VET market in Australia, Fitzgerald (1994) commented:

> *Developing meaningful descriptors of the services (in outcome terms) for whose provision competition is to occur is clearly a prerequisite...there are significant benefits of well-defined product specifications, assessment and selection processes including reduced risk, increasing the efficiency of the tendering process and ensuring the actual 'outcome' closely relates to the expected outcome.* (Fitzgerald 1994, p.131)

A major justification for the introduction of competition in VET (and specifically the more recent policy of user choice), was that it would enhance choice and diversity for clients—both students and employers. Hence, it would be reasonable to assume that measuring the degree to which choice and diversity have increased would be an important outcome measure. As yet there appears to be no measure undertaking this, nor is there a body of research on the issue. Perhaps the closest the system comes to addressing this measure is reporting on the number of registered training providers.

Another argument for the training market is that competition should reduce costs. However, the Productivity Commission report (Industry Commission 1999) indicates that between 1996 and 1997 government expenditure per module load completion rose (at constant prices) by about 8.5 per cent.

Burke (1998) notes two further important justifications for training reform—the poor employment prospects for school leavers resulting from the decline in the full-time teenage labour market, and the importance of retraining the existing workforce, especially those at the operative level. The increased funding that flowed to the VET sector in 1993 and onwards under the ANTA agreement was closely linked to the targets for education and training participation advocated by the Finn report (Finn 1991) and endorsed by the Commonwealth Government and State Governments.

Youth unemployment rates rose sharply over the two decades of the 1970s and 1980s. Wooden (1998) shows teenage unemployment rates rising sharply from below 5 per cent in the early 1970s to a peak of around 25 per cent in the early 1990s. In November 1990 the unemployment rate for persons aged 15–19 seeking full-time employment was 20.8 per cent. By November 1998 the rate was 26.1 per cent, although this was lower than the level in the mid-1990s. Over the same period, the comparable rates for persons aged 20 and over had risen from 6.7 per cent to just 7.2 per cent. The persistent problem of youth unemployment has not been reduced by increased overall spending on VET and it would be unreasonable to expect such an outcome when full-time jobs for young people fell sharply over that period.

During this period however, the nature of the teenage job market changed substantially, and the use of the traditional unemployment rate measure declined in value. (For example, see the discussion in ABS 6203.0 November 1997 feature article, 'The youth labour market'.) A better measure of youth unemployment relative to the total population of teenagers is the ratio of unemployed teenagers seeking full-time employment to the total teenage population.

Over the period November 1990 to November 1998 this ratio initially rose from 6.9 per cent to over 8 per cent in 1992 and thereafter declined gradually to 5.7 per cent in November 1998, indicating perhaps a minor improvement in the teenage labour market. In part this decline in the ratio for the full-time unemployed population might have been a result of the absolute decline in the teenage population during the early-to-mid-1990s of more than 100 000. By November 1998 the teenage population was still less than it was in November 1990. Over the same period full-time employment for 15–19-year olds had fallen by about 150 000 jobs, while part-time employment grew by around 110 000.

During the 1990s the VET sector expanded substantially from around one million in 1992 to about 1.5 million in 1998 providing options to teenagers other than secondary school or full-time employment. This growth, coinciding as it did with the decline in the youth full-time labour market and the growth of the part-time youth labour market, meant that opportunities for combining study and part-time work expanded substantially.

Year 12 retention rates did not respond significantly to rising youth unemployment rates until the early 1980s. Ainley (1998) shows Year 12 retention rates rising from about 35 per cent in 1981 to peak in 1992 at 77 per cent, then drifting downwards to about 71 per cent in 1996.

Robinson and Ball (1998) show that, while the actual number of young people in Australia aged 15–19 participating in VET fell slightly between 1990 and 1996 (largely for demographic reasons), their participation rate actually rose marginally from 19.6 per cent to 20.4 per cent. Most of the growth in VET enrolments over that period occurred among older students. Robinson and Ball also conclude that young people entering VET in 1996 had completed higher levels of schooling than was the case in 1990. They also show that VET was providing a clear pathway into employment for 15–19-year olds, with 74 per cent of 1994 graduates employed when surveyed in 1995.

Many of the young people in VET have traditionally been in apprenticeships or traineeships. Over the 1990–96 period the number of 15–19-year olds in apprenticeships and traineeships fell more sharply than the total number in this age group in VET overall. The recent increase in trainee numbers has more than offset the slow decline occurring in apprentice numbers. In overall terms, the outcomes expected from increasing levels of education for young people from the Finn report's initiatives have only partly been achieved. Most importantly, Robinson and Ball show that the fall in the number of young people in apprenticeships and traineeships between 1990 and 1996 was attributable to demographic changes and perhaps a widening of vocational education options. When participation by the 15–19-year age group in a more broadly defined vocational and education context is viewed in terms of that age group's share of the population, it is apparent that their participation in VET has remained more or less constant.

When education participation and youth employment data for recent decades are considered, what becomes apparent is that a considerable number of young people in the 15–24 group are leaving the education system with neither a Year 12 qualification nor a vocational qualification. Curtain (1998) points out that in May 1998, 23 per cent of 20–24-year olds in Australia had neither completed Year 12 nor did they have a post-school qualification. Using international comparisons, the

implication of Curtain's analysis is that it is the VET sector, rather than universities, which is failing to attract sufficient numbers of young people.

industry-oriented outcomes

There are two levels at which VET outcomes can be viewed from the perspective of industry. One is the broad labour market outcome, where the VET system produces sufficient numbers of graduates in the occupational areas demanded by industry (reflecting the mix of courses delivered). The other (reflecting curriculum content) is the capacity of the VET system to deliver graduates with the right mix of specific skills to meet current demands.

In relation to the first of these perspectives, the national KPM 2 aims to measure the success of the system. For the second, the employer satisfaction survey (ESS) seeks feedback from employers on their level of satisfaction with the system. Results from the 1995 and 1997 surveys were reported by ANTA (1997) and are reproduced in the following table.

table 3: percentage of employers agreeing/disagreeing that VET is providing graduates with skills appropriate to employers' needs

	1995	1997
agree	56	65
disagree	25	19
can't say/neutral	19	16

source: ANTA 1998a, p.37

In interpreting the data in the annual report, ANTA notes an overall increase in employers responding with a view that VET was providing graduates with skills appropriate to their needs, from 56 per cent in 1995 to 65 per cent in 1997, showing that employer satisfaction was 'significantly higher' in 1997.

In the 1997 ESS only about 27.5 per cent of employers surveyed said that there were insufficient VET graduates to meet their demands. Retailing accounted for nearly a quarter of those employers and among retailers identifying skills shortages, more than two-thirds identified the trades area as the main area of shortage. Only three other industries showed significant levels of respondents reporting skills shortages—agriculture, property and business services, and health and community services. Agriculture sector employers also identified trade skill shortages as the most significant, while the other two industries identified a shortage of sales and personal service workers as most prevalent.

From the employers' perspective however, the suitability of VET graduates for their enterprise represents only one dimension of VET performance. The extent and rapidity of change that have characterised VET over the last decade have produced, according to a recent study by Brennan (1998), an unintended outcome for employers—confusion and uncertainty, especially in relation to the area of greatest familiarity to them, apprenticeships and traineeships. Brennan also identifies the quality of on-the-job training as a concern, suggesting that many employers might not allocate sufficient time to addressing the skills required in training packages. One conclusion from this work is that employers require greater support from government and other intermediaries to ensure that on-the-job training provision achieves satisfactory outcomes.

An important concomitant of the training reform agenda, the second perspective referred to above, was the growing pressure from some industry sources to have a greater influence over the content of VET curriculum and the mode of delivery. This debate has mostly centred on the method of assessment of learning outcomes and the competency-based (CBT) approach to assessment.

Gonczi (1998) views the intrusion of groups outside the education profession into the formation of curricula as potentially destructive to the VET system, not because industry needs should not be addressed in VET, but because industry **alone**, through training packages should not determine the courses offered, their content and how they are offered. In particular, he sees the competency-based training system as a simplistic, reductionist approach to measuring educational outcomes of individuals. He fears that, at the individual level, the measurement of learning outcomes, as expressed in competencies assessed within defined training packages, is focussing on a narrow range of skills that no longer form part of a coherent learning strategy.

industry investment in training

Underlying much of the advocacy of greater efficiency in the provision of training is an assumption that there really is an informed market for efficiently delivered training as part of a generally more competitive business climate. In fact, the evidence appears to be to the contrary, with limited interest among employers on the impact of training on their own productivity. This evidence should be tested through some of the studies currently being funded through ANTA's National Research and Evaluation Committee (NREC) on the return on training investment.

McDonald and Hayton (1998) provide a useful discussion on the state of evaluation of courses in VET in Australia in which they note the 'low number of

published evaluations of courses or training programs'. They conclude that the most common practice in this area is the collection of performance indicator data already held on TAFE computer systems, together with survey-based data. They conclude that such approaches appear to have replaced traditional course evaluation studies, in line with practices reported overseas. They also note that the published evaluation of workplace training programs appears limited to the 1995 and 1996 studies undertaken for the Victorian Office of Training and Further Education by Smith et al. (1995), Hayton et al (1996) and McIntyre et al (1996). They note that those studies found that: 'Despite the evident commitment to training by most enterprises, there was a conspicuous lack of attention to the impact of training on productivity or profitability' (McDonald 1998). This lack of interest in enterprise-level outcomes of training is a particular irony, given the long-standing rhetoric that reforms such as the development of a training market are industry-driven.

Billett and Cooper (1998) report similar conclusions. In considering the outcomes most likely to be of value to businesses undertaking training, such as increased revenue, decreased or avoided expenses and intangible benefits, they observe that such outcomes are 'more intentions than proven benefits...none of the enterprises in the 1994 [Billet's] study ... had any formal mechanisms to equate the expenditure on training with productivity increases'.

The issue of employer investment in training and the lack of an Australian training culture have been widely debated in the VET literature (for example, Anderson 1998), and many reasons for under-investment by employers and individuals in training have been advanced. In the early 1990s the Federal Government introduced a temporary Training Guarantee in an attempt to increase industry funding for training. This program was discontinued. A feature of employer expenditure on training is the marked variation that exists between industry sectors (NCVER 1998a) and the fact that some sectors increased their training expenditure per employee markedly between 1993 and 1996 (that is, pre- and post- the Training Guarantee) while others reduced expenditure. Per capita reductions occurred in some of the faster-growing sectors such as accommodation, cafés and restaurants and property and business services.

VET in **schools**

VET in schools is a relatively recent development and the numbers involved as yet do not match those in VET elsewhere. As discussed earlier in this paper, outcome measures specific to VET in schools are, to date, relatively undeveloped.

Nevertheless, there has been considerable debate over some of the issues associated with delivering VET in schools which indicate the areas where the development of outcome measures might focus. Research into VET in schools appears to show a mixture of positive outcomes from the student's perspective but some confusion and lack of consistency in program implementation.

There appears to be little published research showing the propensity of students undertaking VET in schools to progress to post-school VET courses. There are also little data on the post-school labour market status of students who undertook vocational programs in relation to students undertaking 'academic' courses.

The recency of VET in schools and the rapid rate at which it has grown have produced some confusion over the best ways to deliver VET programs in schools. Porter (1998) notes that:

> *Based on the initial responses from program coordinators in Queensland schools, there appears to be some confusion about the role of different vocational programs in the overall educational experience and an absence of integrated implementation guidelines. It is also apparent that information is not always effectively disseminated to the full range of stakeholder groups including schools, students, parents, and employers. These topics will be explored with reference to the preliminary findings from the current TEPA research project.* (Porter 1998, p.1)

Referring specifically to the New Apprenticeship Scheme Porter concludes:

> *It can be argued that the principles underpinning the New Apprenticeship Scheme of flexibility, accountability and accessibility in the short-term have been compromised due to the rapidity of educational policy reform at a macro level.* (Porter 1998, p.14)

In a study of VET in NSW schools Kane (1997) defined her coverage in the following terms:

> *In this paper vocational education refers to programs of study offered in the post-compulsory years of secondary schooling, Years 11 and 12, which have a specific focus on employment preparation and training, rather than on preparation for tertiary entrance and study in the higher education sector.* Kane 1997, p.1)

Consequently she notes that:

> *The relationship between the expected outcomes of education in Years K to 12 and the required workplace competencies of the employment sector became another focus of educational planning and funding, driven by the more sophisticated skills required for work and the 'diminishing availability of unskilled work opportunities.* (Kane 1997, p.2)

Kane notes that in NSW and in some other States, Year 12 retention rates have plateaued and in some cases declined since the mid-1990s. She suggests that the loss of students through the decline in retention is related to students' failing to appreciate the value of undertaking post-compulsory schooling—including vocational programs. She argues that the development of self-concept and self-esteem are important outcomes for students undertaking VET in schools. She found that participation in employment preparation programs had a positive impact on self-concept for students not achieving high levels in academic subjects.

> *It was also clear from interview comments that students in the Employment Preparation programs considered there was a sense of a real transition from school to work which was stimulating and of great interest.* (Kane 1997, p.9)

Some researchers in VET in schools have raised concerns over the influence of industry on VET curricula and the growing emphasis on enterprise education for students. In a recent paper to the Australian Association for Research in Education (AARE), Professor John Smyth said:

> *Where this paper strikes out and takes a different position is in arguing that enterprise education may be part of the 'problem' rather than the 'solution'. In other words, enterprise education is being used as a kind of ideological hook with which to draw us into believing that the way out of the now universal youth crisis (Shuttleworth, 1993 Enterprise Learning in Action: Education and Economic Renewal for the Twenty-First Century. London & New York: Routledge) in which young people leave school unable to secure jobs, is through having them develop the necessary personal and collective aptitudes, values and dispositions through projects that claim to stress innovation, partnerships with industry, networking, vocational education programs, and acquiring enterprising skills, knowledge and behaviours.*
>
> (Smyth 1998, p.1)

He argues that the focus on enterprise education might be serving only a narrow, short-term interest and undermining efforts to achieve greater equity through VET.

> *The problem to which enterprise culture purports to be the answer, presumes attitudinal, dispositional and behavioural defects in the lives and backgrounds of certain groups who need resuscitating in order to gain a toe-hold in the economy. By quarantining the problem in this way so that it becomes an issue of 'kids from poor backgrounds who can't get jobs', the social pathology view of enterprise culture locates the problem with individuals, rather than focus on the social and economic structures of society that produce and maintain inequality.* (Smyth 1998, p.3)

However, even narrow vocational experience should not be regarded as of no benefit to the young person involved. Kane also argues that one of the important outcomes of vocational development for young people is the growth of their self-concept, and she points to this as an area neglected in Australian research:

> *Despite early work by Super (1951, 1957), Tyler (1951) and others which established the link between vocational development and self-concept, there has been limited Australian research in this area. This link has been recognised in a number of reports as an important facet in the developmental needs of young adolescents (eg, Board of Teacher Registration Queensland [BTRQ], 1994).* (Kane 1997, p.3)

Kane also noted that: 'The main outcome to emerge from the study was that, for low-academic achieving students, vocational education programs are more effective than tertiary preparation programs in developing positive changes in self-concept' (Kane 1997, p.12).

outcome measures in a broader context

Outcome measures in VET generally have a predominantly economic focus, with some regard to educational outcomes. This situation is probably due to their genesis in financial accountability measures between the Commonwealth Government and State/Territory Governments. Community and personal outcomes are, however, also important measures for an educational system.

The continued deterioration in the youth labour market, comprehensively and concisely documented by Sweet (1998) and Wooden (1998), is as much a community concern as whether industry is obtaining the right mix of skills from the VET sector. The personal impact on young people of an uncertain employment outlook, probable under-employment (for example, see Buchanan & Bretherton 1999) and deteriorating earning capacity (Sweet 1998) require the attention of VET policy-makers as much as do rising unit costs in VET or the measurement of the system's outputs.

Negative attitudes to the workplace will not produce young people willing to acquire the necessary skills both for their own future security and for the economy's health. The VET sector therefore could only benefit through the development of broader and more inclusive measures of VET outcomes that acknowledge the importance of addressing community and personal needs.

findings and directions for further research

labour market outcomes

The main shortcoming of the present method for measuring labour market outcomes, including earnings and labour market status, can be identified as the focus on the short-term outcome of undertaking a course. No ongoing process exists for assessing whether any longer-term outcomes are achieved, despite the strong feeling of many VET providers that longer-term changes are of greater educational significance. Another finding from the GDS, that nearly 40 per cent of graduates are enrolled in further study, with more than two-thirds of these in TAFE, perhaps supports the contention that the short-term labour market outcome for graduates is not a complete measure from the student's perspective.

One outcome from the GDS that does not appear to have been fully appreciated is the level of dissatisfaction among students in relation to the provision of information on courses and career prospects on completion of particular courses. The two lowest scoring areas for graduates' satisfaction in both the 1997 and 1998 graduate destination surveys were:

- provision of information on careers and jobs
- information received when choosing a course

That these areas are viewed by students as inadequately addressed by the VET system suggests also that decisions being made by students on course selection are being made, in their opinions, with inadequate information. If this is the case it might be that overall improvements in VET outcomes could be achieved by the provision of better information on labour market trends, employer demand for skills and the employment outcomes of specific courses of study. It could be conjectured that an improvement in this initial course selection process could considerably improve the employment rates of graduates, given that nearly

80 per cent of graduates surveyed in the 1998 GDS were primarily motivated by vocational factors.

Research into the incomes of VET graduates some years after graduation (Long, McKenzie & Sturman 1996), suggests that the income gains for VET graduates are too small, especially for women, to apply a HECS model to the VET sector. The most recent data used in their study dates from 1993. Work undertaken by the author (Dumbrell et al. forthcoming) using 1997 GDS data suggests that for recent TAFE graduates, the earnings benefits from a TAFE qualification might have improved; however, there are marked variations between industries and the genders. Again, replicating the work of Long, McKenzie and Sturman would require the collection of longitudinal data over a lengthy time and would be relatively expensive.

Another important issue is the undercounting of the VET system output resulting from the 'non-completion' phenomenon described by Foyster and others (Foyster et al. 2000). In effect, the VET system is probably considerably underestimating the dimension of its outputs (and hence the overall impact of its outcomes) because it has a significant emphasis on course completion. Because many students do not seek to complete courses, but simply aim to gain skills associated with individual modules, the system is distinct from other areas of education and probably requires an expansion of its outcome measures. The expansion of the graduate destination survey, retitled as the student outcomes survey, to embrace module completers is an important step in addressing this issue.

further research in labour market issues

The major areas for further research appear to be:

- longer-term employment and earnings outcomes of VET
- identification of changes required in the provision of information to students on choice of courses and careers

equity in VET

The main equity target groups, including women, continue to experience poorer labour market outcomes from VET. Policy responses in the past have tended to focus on increasing participation rates for these groups without considering the nature of the participation. It seems clear that improving participation rates does not necessarily lead to equitable labour market outcomes. As well as exogenous factors such as employment discrimination, differences in choice of field of study

and limited chances to engage with the labour market during study might still be limiting the employment prospects of target group members.

Further equity-related research into outcomes might profitably consider the nature of participation and the different labour market outcomes that result from differences in course choices. One area for investigation is whether labour market outcomes for equity groups are inferior when they are matched for level and field of study with all students. Labour market outcomes are not of course, the only outcomes relevant to VET students and in particular, to many of those in the equity target groups. Many VET courses are designed to provide pathways for those with a labour market disadvantage who require other outcomes before a job is a realistic option. To reiterate the point made by McDonald (1998), specific course evaluations, using outcome measures of relevance to the course and the students, are likely to provide better policy direction than broad outcome measures. Such an approach would allow the measurement of outcomes such as improved self-esteem, improved literacy and numeracy skills, or other educational outcomes.

Furthermore, there are limits to how much the VET sector can directly affect labour market outcomes. VET research and policy responses can focus on ensuring that either these groups are better connected to the labour market, are given better information on the labour market, or are assisted to select courses that might achieve better labour market or personal outcomes. The VET system cannot, however, overcome other barriers in the labour market. The growing gap between education and employment administrations, both within Commonwealth Government and State/Territory Governments which has emerged during the late 1990s, suggests that the development of adequate policy responses to poor *employment* outcomes for target group students might become increasingly difficult. VET policy research should perhaps address ways in which such a gap may be overcome.

It is also apparent that there remain shortcomings in the collection of data at enrolment on membership of some equity groups. As there are marked variations between jurisdictions in responses to such questions, a jurisdiction-by-jurisdiction evaluation of enrolment procedures may be an appropriate way to develop best-practice models in enrolment procedures to ensure higher levels of compliance.

further research issues in equity

Some issues for further research would include:

- identification of best practices in enrolment procedures to ensure high levels of compliance with questions on membership of equity target groups

- development of evaluation methodologies relevant to measuring the outcomes for targeted equity groups
- identification of the extent to which internal factors, such as choice of course, determine employment outcomes for equity groups. Would better course choices produce better outcomes?

youth unemployment and VET

In the early 1990s, increasing resources for VET was seen as one strategy for addressing youth unemployment. Underlying this strategy was an assumption that there was a demand for skilled young workers not matched by the skills of those emerging from full-time education. Since this time, full-time employment for young people has declined in Australia and teenage unemployment rates have remained high.

The introduction of the New Apprenticeships scheme relatively recently and the rapid increase in numbers undertaking this program may reverse this situation. Clearly research into and evaluation of New Apprenticeships and their impact on teenage unemployment will be a major focus for VET research over the coming few years. Of particular concern could be how young people in geographical areas lacking employment may participate in New Apprenticeships; other program options could also be identified.

Clearly research into and evaluation of New Apprenticeships and their impact on teenage unemployment will be a major focus for VET research over the coming few years.

It could be asserted that there is, in the late 1990s, a much lower community expectation that improved levels of education and training alone will improve the youth unemployment rate; however, youth unemployment remains, fairly or unfairly, one of the major community outcomes or expectations unfulfilled by VET.

further research into youth unemployment and VET

There is a substantial body of Australian research into youth unemployment and education (including VET). Generally speaking, youth unemployment and underemployment in Australia appears not to be related to a deficit of skills in the youth population, but rather to structural changes in the labour market which have disadvantaged young people. Nevertheless, Australia still compares relatively poorly with other OECD countries in many indicators of educational standards (Curtain 1998). Curtain shows that at least 14.5 per cent of Australia's teenagers are

'at risk' in the labour market—neither in full-time education nor in full-time employment.

One fundamental issue that does not appear to have been addressed is why the youth full-time labour market deteriorated so much more over the last decade or so than that for older workers. Possibly related to this question, implicit in Curtain's work, is why there has not been a stronger growth in young peoples' participation in VET, given this deteriorating labour market.

An NREC-funded study into locational issues in New Apprenticeships and which addresses the geographical issues noted in the previous section is already being undertaken by the author of this paper.

funding the training market

A basic question not yet answered is whether the development of the training market in Australia has produced the benefits, in terms of greater efficiency, reduced costs and greater diversity and responsiveness in the VET system.

Various efforts have been made by governments (such as the former Labor Government's Training Guarantee) to encourage higher levels of investment in training by employers, in order to reduce the dependency on government expenditure. Nevertheless, between 1993, when the Training Guarantee was in operation, and after its suspension in 1996, employer training expenditure (ABS 1997) declined as measured by dollars spent per employee. However, because of the rise in total employment over that period, total expenditure rose. Of more concern, is that the proportion of employers providing structured training fell over that three-year period.

The current Federal Government has chosen a different approach to increasing non-public sector contributions to training. In broad terms, they have substantially reduced the former government's expenditure on training-based labour market programs and used some of the savings to fund an expansion in structured training in the form of New Apprenticeships. This policy has seen a substantial increase in the numbers undertaking traineeships compared with the beginning of the decade, although most of this growth has occurred among those aged over 20 (Robinson & Ball 1998).

It is difficult to assess the extent to which this policy has shifted training costs from government to employers (through the provision of only partly subsidised on-the-job training) and to trainees (through the acceptance of training wages). While cost shifting has not, to the writer's knowledge, been seen as the major objective of

this program, it seems likely that this is one of its results. If this is the case, New Apprenticeships could be seen as addressing two social objectives with some success—increasing non-public sector investment in training and increasing training opportunities for young people. The extent to which these outcomes have been achieved awaits close evaluation.

further research into training market issues

Research issues that might be explored further in this area include:

- identification of the extent to which the New Apprenticeship program has shifted training costs from government to employers and apprentices
- how does the system measure an increase in diversity of VET provision and what benefits have derived from any such expansion?

matching **supply** with **demand**

Matching the supply of skills to the current and emerging demands of the labour market is surely one of the main challenges of the VET system. It addresses both the aspirations of most VET graduates to find employment and of employers to have access to appropriately skilled workers. From the perspective of the broader community such an outcome reduces unemployment, reduces wage inflation resulting from skill shortages and optimises resource usage in the VET system.

It is clear that ANTA is well aware of the difficulties inherent in measuring whether the outcome sought by the key performance measure—Stocks of vocational education and training skills against desired levels—is being achieved. In an internal paper (ANTA undated b), ANTA proposes a range of measures to develop this KPM and which includes further research, more detailed industry consultations and international benchmarking. The ANTA paper also highlights the need for improvements in data collection and data quality, including rationalisation of field of study and level of qualification measures.

There are limits on how much labour market demand-side information can be gathered directly from employers. Employers can at best advise on their current and short-term needs; furthermore, there is the potential for supporting the development of an oversupply of skills in order to maintain downward pressure on wages. An oversupply of skills is contrary to the broader community interest if unemployment results, if VET resources are misallocated and if consequent skill shortages develop in other, emerging sectors.

Moreover, industry as presently constituted, does not necessarily represent the likely shape of industry in say five years' time. As has been demonstrated most clearly in the information technology sector, new industries can be quickly generated by the entrepreneurism, creativity and skills of individuals.

Given that less than 50 per cent of the existing workforce (as at the 1996 census) holds a formal qualification, many employers might not be in a position to translate some or all of their current labour demands into formal qualifications or components of such qualifications.

Little formal VET research has been undertaken in the Australian labour market on substitution of formally qualified workers for those without formal skills, although ABS population census data shows that many workers employed in skilled jobs do not hold formal qualifications. The following table from the ABS 1996 population census shows the proportion of workers by major occupation group who do not possess formal qualifications.

table 4: workers without formal qualifications

occupation group	proportion without formal qualifications (%)
managers & administrators	39.4
professionals	14.2
associate professionals	45.7
tradespersons & related	34.3
advanced clerical & service workers	59.2
intermediate clerical, sales, service	63.3
intermediate production & transport	72.7
elementary clerical, sales, service	72.4
labourers etc.	76.9
total all occupations	47.1

source: ABS 1996 population census

It is apparent from the above table that, in those major occupation groups most likely to be supplied by the VET system, at least a third of the current work force lacks a formal qualification. One area for further research would be whether this situation is likely to change in the future.

Another challenge in planning the delivery mix for VET is that a sizeable proportion of the skilled labour market is still supplied by migrant labour. As yet there appears to be no adequate formal mechanism in place to harmonise the supply of skills through immigration with skills supplied through the VET system. In 1999 there were 35 000 migrants expected to enter Australia under the skilled component of the migration program.

There also appears to be a lack of research considering whether university graduates may compete with VET graduates for jobs in some categories, especially in the associate professional and advanced clerical and service occupations. Of those persons working in associate professional occupations as at the 1996 census who possessed qualifications, approximately equal numbers held skilled vocational qualifications as held diploma or higher qualifications.

An alternative source which does not appear to have been fully exploited to date may be the employer satisfaction survey. It may be possible to gather more specific information on unsatisfied demand for skill from this source. At present, much of the VET strategic planning information on emerging skill shortages is based on work undertaken by industry training advisory bodies, many of which have limited resources for undertaking sophisticated labour market analysis.

further research into matching VET supply with labour market demand

Some themes that emerge from the above include:

- identification of the extent to which the formal VET system can supply qualifications to the large proportion of the skilled labour force currently lacking formal qualifications
- the means whereby VET planning can be integrated with the skilled migration program
- identification of the occupational areas supplied by the VET sector where there is 'dual' provision by the VET sector and the university sector

VET in **schools**

At least three issues emerge from this paper in relation to VET outcomes from the VET in schools perspective. The first is the lack of developed outcome measures for VET in schools in comparison with VET delivered post-school. It is likely that future decisions will be made regarding the relative merits of VET delivered through schools by comparison with VET delivered through other providers. The lack of comparable outcome measures therefore will limit the capacity to make sound judgements. Research into developing comparable, but not necessarily similar outcome measures between schools and other VET providers, would seem a worthwhile aim.

There appears to be no system in place to track the educational and labour market destinations of students undertaking VET in schools. Some means of

determining, for example, whether students undertaking VET courses are more likely to progress into post-school VET courses would seem to be of value in assessing the future role of schools in the VET system. Exploratory research in this area may be a valuable first step in determining the options available to gather such information efficiently.

Several researchers have noted some confusion and lack of clarity of purpose among the school systems in delivering VET in schools (for example, Porter 1998). Some researchers (for example, Smyth 1998) have also questioned the purpose of VET provision in schools, suggesting it is an ineffectual response to the larger problem of youth unemployment. On the other hand, educational researchers have affirmed the positive benefits to students' self-esteem, of participation in vocational programs for those not achieving high levels in traditional academic courses.

further research on VET in schools

Given the early stages of development of VET in schools, there would appear to be considerable scope for ongoing research into developing better outcome measures. These might include such outcomes as improved self-esteem, tracking the progression of students undertaking school-based VET courses, and more fully documenting the value of broadening the school curriculum beyond the traditional academic model.

references

Ah Chee, D, Beetson, J & Boughton, B 1997, 'Indigenous people's education rights in Australia', paper presented to the *Indigenous Rights, Political Theory and the Reshaping of Institutions Conference*, Australian National University, Canberra, 8–10 August 1997.

Ainley, J 1998, 'School participation, retention and outcomes' in *Australia's youth: Reality and risk*, Dusseldorp Skills Forum, Sydney.

Anderson, D 1997, *Competition and market reform in the Australian VET sector*, NCVER, Adelaide.

Anderson, D 1998, 'Training markets' in *Readings in Australian vocational education and training research*, NCVER, Adelaide.

ANTA (Australian National Training Authority) 1997, 'Key performance measures for vocational education and training', reports of the ANTA Board's Performance Review Committee, October 1997.

——1998a, *Annual national report 1997*, Brisbane, 3 v.

——1998b, *Key performance measures implementation plan*, April 1998.

——1999a, *Annual national report 1998*, Brisbane, 3v.

——1999b, 'Principles and guidelines for improving outcomes for vocational education and training in schools', Brisbane.

——undated a, 'Achieving equitable outcomes', a supporting paper to Australia's national strategy for vocational education and training 1998–2003, Brisbane.

——undated b, 'Approaches to further develop KPM 2: Stocks of skills against desired levels', ANTA internal working paper, Brisbane.

ABS (Australian Bureau of Statistics) 1997, 'Employer training expenditure Australia' 6353.0, July–September 1996.

Billett, S & Cooper, M 1998, 'Enterprises and vocational education and training: Expenditure and expected returns', *Journal of Vocational Education and Training*, vol. 50, no.3, pp.387–402.

Brennan, R 1998, 'Perspectives on traineeships: The commodification of employment', paper presented to 7th Annual VET Researchers' Conference, Charles Sturt University, Wagga Wagga, NSW.

Buchanan, J & Bretherton, T 1999, 'Experiences of young adult workers' in *Australia's young adults: The deepening divide*, Dusseldorp Skills Forum, Sydney.

Burke, G 1998, 'Education and training in Australia: Reforms and results', in *Different drums, one beat? Economic and social goals in education and training*, Monash University–ACER Centre for the Economics of Education and Training and National Centre for Vocational Education Research Conference, Mt Evelyn, Victoria, 20–21 March 1997, ed. F Ferrier & D Anderson, NCVER, Adelaide.

Curtain, R 1999, 'Young peoples' transition from education to work: Performance indicators', Dusseldorp Skills Forum, Sydney.

DEETYA (Department of Employment, Education, Training and Youth Affairs) 1998, 'Case study of construction industry traineeship at Cherbourg', in *Constructions of work and training: Case study of construction industry traineeship at Cherbourg, 98 abstracts*, ed. Conrad Ingra & Terry Clark, Central Queensland University, part of Informing New Apprenticeships Through Indigenous Specific Training Projects Project, commissioned by the DEETYA Evaluation & Monitoring Branch, September 1998.

Deveson, I 1990, 'Training costs of award restructuring,' AGPS, Canberra.

Dumbrell, T, de Montfort, R, Finnegan, W & Wright, P 2000, 'Still not equal', NCVER, Adelaide.

Field, C 1998, 'Equity in VET: Who counts?', paper presented to 7th Annual VET Researchers' Conference, Charles Sturt University, Wagga Wagga, NSW, available from NCVER.

Finn, B (chair) 1991, 'Young people's participation in post-compulsory education and training', report to the Australian Education Council Review Committee, AGPS, Canberra.

Fitzgerald, V 1994, 'Establishing an effective Australian training market—final report to OTFE, December 1994', Allen Consulting Group, Melbourne.

Foyster, J, Fai, HK, & Shah, C 2000, *Student flows through Australian TAFE courses*, NCVER, Adelaide.

Gonczi, A 1998, 'The potential destruction of the vocational education and training system, in *Different drums, one beat? Economic and social goals in education and training*, Monash University–ACER Centre for the Economics of Education and Training and National Centre for Vocational Education Research Conference, Mt Evelyn, Victoria, 20–21 March 1997, ed. F Ferrier & D Anderson, NCVER, Adelaide.

Graduate Careers Council of Australia (available at www.gradlink.edu.au/gcca/g_gra97/htm accessed May 1999).

Harris, R, Guthrie, H, Hobart, B & Lundberg, D 1995, *Competency-based education and training: Between a rock and a whirlpool*, Macmillan, Melbourne.

Hayton, G, McIntyre, J, Sweet, R, McDonald, R, Noble, C, Smith, A & Roberts, P 1996, 'Enterprise training in Australia, final report', OTFE, Melbourne.

Industry Commission, Steering Committee for the Review of Commonwealth/State Service Provision 1998, *Report of Government Services 1998*, Canberra.

——1999, *Report of Government Services 1999*, Canberra.

Kane, J 1997, 'New times in secondary schooling: The effects of vocational education on the development of self-concept and vocational preparation', paper from the Australian Association for Research in Education annual conference, Brisbane 1997 (available at www.aare.edu.au/97pap/KANEJ198.html accessed May 1999).

Long, M, McKenzie, P & Sturman, A 1996, *Labour market and income consequences of participation in TAFE*, ACER research monograph, no. 49, Melbourne.

McDonald, R & Hayton, G 1998 'Evaluation of vocational education and training' in *Readings in Australian vocational education and training research*, NCVER, Adelaide.

McIntyre, J, Petocz, P, Hayton, G, Roberts, P, Noble, C & Smith, A 1996, 'Enterprise training in Australia: The national enterprise training survey', OTFE, Melbourne.

NCVER (National Centre for Vocational Education Research) 1997a, *Employer satisfaction with vocational education and training 1997: National report*, Adelaide.

——1997b, *TAFE graduate destination survey 1997: National report*, Adelaide.

——1998a, *The outlook for training in Australia's industries*, Adelaide.

——1998b, *Statistics 1997: An overview*, Adelaide.

——1998c, *Young people 1997: An overview*, Adelaide.

——1999 *Statistics 1998 in detail*, Adelaide.

New South Wales Council on the Cost of Government (available at www.occg.nsw.gov.au/research/sea.htm accessed August 1998).

Porter, J 1998, 'Vocational education and training policy directions: Implications for practice in Schools' Tertiary Entrance Procedures Authority, Queensland. (The references referred to in her quote are Super, DE 1957, *Scientific careers and vocational development theory*, Bureau of Publications, Columbia University, New York and Super, DE 1957, *The psychology of careers*, Harper & Row, New York) (available at www.aare.edu.au/98pap/por98261.html accessed May 1999).

Robinson, C & Ball, K 1998, 'Young people's participation in and outcomes from vocational education', in *Australia's youth: Reality and risk*, Dusseldorp Skills Forum, Sydney.

Robinson, C & Bamblett, L 1998, *Making a difference: The impact of Australia's indigenous education and training policy*, NCVER, Adelaide.

Robinson, C & Borthwick, J 1998, 'Measurement of vocational education and training outputs, NCVER for the Performance Review Committee of ANTA, Adelaide.

Schofield, K & Dryden, R 1997, 'Equity performance measures for women in VET', report to MCEETYA July 1997, NCVER, Adelaide.

Smith, A, Hayton, G, Roberts P, Thorne, E & Noble, C 1995, 'Enterprise training in Australia: The factors that effect demand', OTFE, Melbourne.

Smyth, J 1998, 'Schooling and enterprise culture in Australia: Pause for a critical policy analysis', paper to the annual meeting of the Australian Association for Research in Education, Adelaide, November–December 1998.

Sweet, R 1998, 'Youth: The rhetoric and the reality of the 1990s', in *Australia's youth: Reality and risk*, Dusseldorp Skills Forum, Sydney.

Wooden, M 1998, 'The labour market for young Australians', in *Australia's youth: Reality and risk*, Dusseldorp Skills Forum, Sydney.

This review of research on vocational education and training is one of a series of reports commissioned to guide the development of future national research and evaluation priorities.

Tom Dumbrell is a director of Dumbrell Consulting, a Sydney-based research consultancy established in 1998, specialising in vocational education, training and the labour market. Tom was previously a senior executive in the New South Wales and Commonwealth governments where he had lengthy experience in research, planning and policy development in employment and vocational education.

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